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AMERICAN DYESTUFF REPORTER

Vol. VIII, No. 9 Feb. 28, 1921

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By Raffaele Sansone

shed weekly by Howes Publishing Co., Woolworth Bldg., New York, N. Y. Domestic subscription $5.00; Canadian $5.50; Foreign $6.00. Entered as second-class matter Nov. 6, 1919, at the New York, N. Y., Post Office under the Act of March 3, 1879.

VOR

PRO BONO PUBLICO—No. 5

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AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

"Circulated Everywhere Dyestuffs Are Used"

Vol. 8 New York, February 28, 1921 No. 9

"DYES FOR DEFENSE . . . "

". . . But Not One Tint for Tribute"—Ten-Minute Exercises in the Association of Ideas, for the Use of Busy Lawmakers and Prompted by General Mitchell's Testimony

YOU will find a good deal about airplanes, battleships, coast defense and other military matters of moment in what follows, and perhaps rather less about dyes than is customary; yet since the Senate, strange to say, does not act as though it intended passing the Dye bill this week, and the material to be given is not only exceedingly interesting in its own right but, in addition, contains a message of real concern to all of us, you may just possibly come to believe, with us, that your time has not been altogether wasted in perusing it.

Had it not been that the jolly old Congress of the United States of America, after treating the American dye industry like a poor relation for the past two years, had suddenly and with all the uniformity of design displayed by the average crazy-quilt taken up the question of national defense, thereby bringing before it for its further enlightenment, Brigadier-General William Mitchell, Assistant Chief of the Air Service, some valuable information about modern warfare in general and the military situation of this country in particular might have waited a while longer for an airing—which would have been regrettable. But it did manifest a desire to interest itself in the question, and the General testified, and among the things which he made clear to our law-givers were the following:

That our present system of coast defense is at present pretty much obsolescent and soon will be altogether obsolete; that the mailed fist of yesterday is a joke when pitted against the mailed 'plane carrying a cargo of gas-filled bombs; that England has reversed her traditional naval policy in favor of becoming Mistress of the Air; that plenty of aircraft working in conjunction with mobile troops and their accessories is the only possible method of defending a seacoast against a modern attack; that a thousand airplanes can be built for the cost of one capital ship costing between $40,000,000 and $45,000,000; and, in short, that Congress had better give up relying

wholly upon the navy and long-range coast defense guns, and instead spend some of the money on the development of a first-class aerial defense, comprising 'planes and poison gas.

"We can easily lead the world," declared the General, "at a comparatively small cost. We have the men, the materials and the factories all within our own country."

That statement is to-day absolutely true. We have the nucleus of a capable, efficient personnel; we have always had the materials, and we have the factories. We have a portion of the men and the plants created by the War, and we have many more potentially in the American dye industry, also created by the War and kept alive solely because a technical state of war has been maintained between this country and Germany ever since formal hostilities were opened early in 1917. It would cost the Government—which means the taxpayers—a good round sum every year to keep in operation sufficient plants and research laboratories to guarantee leadership, and the Government—possibly because of muffled but perfectly audible rumblings from the aforementioned taxpayers—seems to be trying to reduce all costs to a minimum. But with or without rumbling, and with or without a sudden conscience-stricken zeal for economy, if it cost only $1,000 per year to maintain them, why, that would be just $1,000 too much if not necessary. Think of it! A thousand dollars thrown away that might go toward defraying the expense of printing additional substitutes for the Dye bill, or into an appropriation for the improvement of waterways leading to Senator Thomas' textile mills in Colorado!

And if, on the other hand, these factories and personnel should be allowed to grow up as part of a complete, self-contained coal-tar chemical industry, the expense which the Government would be obliged to pass along to the taxpayers as the price of leadership in the essentials of gas warfare would be only a minute fraction of the sum required to hold such leadership as a purely military proposition. The Government of the United States, for some unknown reason, is apparently the only government left among world powers so lethargic that it has not sensed the fact that this is the first time in the history of modern civilization that, in practical effect, a peace-time market for war munitions has existed to a sufficient extent to allow their development and manufacture to continue year after year without putting a financial burden on the people. The American Indian got a goodly part of his living, through hunting, by means of the same implements that he went to war with, and hence he was always in a state of preparedness without being obliged to maintain one set of arrow-makers who did nothing but practice to preserve their proficiency in making war arrows, and another set to make hunting arrows. A war arrow differed from a hunting arrow about as much as the manufacture of explosives and poison gases differs from the manufacture of peace-time coal-tar products.

And so to-day, while we no longer live as the Indian did, being civilized and having most of our big game hunting done by machinery in Chicago, things could be to an extent the same as then in military affairs if Congress could manage to overcome its miraculous egotism long enough to peer across the Atlantic and see what its nearest white neighbor is doing.

"Is it not a fact," Representative Louis C. Cramton, of Michigan, wanted to know, "that in England to-day the great question is the reversal of their naval policy by reason of the possibilities of attack from the air?"

"It is absolutely the case," replied General Mitchell, "that England is seeking control of the air. The English air force has made several attacks in maneuvers against fleets, in which the air force has theoretically sunk the naval vessels.

"It is our belief," continued the General, "that in the next war gas might be used by a barbarous foe on the centers of communication. We know just how much gas has to be put down on these centers to interrupt communications. For instance, consider an area in the vicinity of New York ten miles by ten miles, or 100 square miles. If two tons of "crying gas" are dropped there by airplane or airship once in eight days it will make everybody wear gas masks and goggles. If we want to keep that place covered with mustard gas we can put down seventy tons once in eight days and everybody will have to protect himself against mustard gas in that area.

"If we want to use Phosgene and kill everybody in that area, we have only to put down 200 tons of Phosgene once in eight days and it will keep that area covered. The only protection against such a procedure is protection in the air. A few 'planes could visit a section several times the size of New York every eight days and wipe out the population. Control of the air is to-day more important than control of the sea. Our system of coast defense to-day is wrong. The only way to really defend a coast is with aircraft and with mobile troops and their accessories."

General Mitchell added that heavy artillery on an extensive scale is a waste of money—that ships will not expose themselves to guns on land which are in a fixed position, have a limited range, and are known to the enemy.

"You must remember also," he went on, "that these battleships cost $45,000,000, and we can build a thousand airplanes for the cost of each such battleship."

This was borne out by Major T. H. Bene, in charge of the experimental engineering division at McCook Field, who said: "Whoever comes here with a naval force will have an air force with that naval force, and if we can stop the air force we can stop the navy. A well-developed air service could protect the coast at much less expense than the cost of the navy." The Major then estimated that the cost of aerial protection for the coast would be $10,000,000 for every 350 miles, as compared with $40,000,000 and upward per 350 miles for naval protection.

General Mitchell then detailed the plans as follows: "What we need behind the Atlantic coast is a brigade of 600 airplanes—60 per cent pursuit, 20 per cent attack and 20 per cent bombardment; behind the Pacific coast a brigade of 600 airplanes similarly organized, and throughout the country in general an air division of two brigades of 1,200 airplanes that can be shifted either way, making an interior defensive force of 2,400 'planes."

The General proceeded to explain how an auxiliary force of aircraft would be apportioned and distributed, comprising in all 3,202 'planes —about the same air force France now has—but we will not burden the

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reader further with this, although it is interesting. Something still more interesting was the statement of Representative Thomas U. Sisson, of Mississippi, when he said:

"If England has adopted supremacy of the air as the best policy, taking into consideration all the dangers of attack which she has on account of her proximity to what might possibly become enemy nations, it would simply accentuate the idea that the United States might make some investigation of the effectiveness of its defense through its air service, and, if not to do more than imitate, at least not to get too far behind in the development of that service."

By all means, Congressman! It is rather unfair to throw upon your shoulders all the weight of all the sins of the Government; but since you happened to speak for the Government at that particular time, why, then—there you go working up approval of an admittedly sound defensive measure after another sound defensive measure, even more vital, has been simply begging to be passed for nearly two years. There you go nodding your head and likely as not conjuring up a bill for military aircraft production, promptly conceived and speedily passed, quite forgetting that other bill, introduced so long ago, which provides for one of the essentials of the aircraft program—high explosives to blow up attacking battleships and poison gases to teach discretion to their crews—a bill which provides for these essentials at even less expense as compared with the aircraft program than the latter expense is less than that of the naval program. Is it because the aircraft idea has the charm of novelty, while the other grows boresome—as reminders of a past fault are so prone to do?

Probably not that. It is more likely to be because you can see the connection between airplanes and defense instantly; the possibilities can take a firm hold on your imagination. The connection in the other case requires diagraming and demonstrating, and even after it is all over there is no real association of ideas—nothing that *sticks* in the memory. That is the reason why the Army bill goes through each time as a matter of course, while this other Army bill, this Dye bill, goes through nothing but a series of circular evolutions. No one needs to be told that if you drop a gas bomb on an invader's army you are going to make him believe there are softer "marks" than the United States, nor that if you drop an explosive bomb you are going to make a pessimist of him then and there. But seemingly it requires a greater mental capacity than most of our Solons possess to grasp the fact that without the dye industry there will be no bombs here of the 1930 pattern.

The title of this article was not chosen merely to provide black types for a heading. It was selected with some care, and we honestly believe that if you will *say it* once or twice it may help you to remember. "Dyes for Defense." Get that? It means something. There is a real relationship. We know you will never have any trouble in associating Aircraft with Attack, Aggression and Annihilation. But think of the other. Take also Dyes with Detonation, Destruction, Devastation, if you like. Not pleasant ideas, we'll admit; but it was you who brought up the subject of airplanes, we believe.

If you and your colleagues can reach a point where you associate Dyes and Defense as readily and as naturally as you now seem to associate Dyes and Delay, you may then assure yourselves that you have almost caught up with the rest of the world, and are again living in your own age instead of remaining stuck fast somewhere back in the early eighties.

The Uniform Color & Chemical Company, Jersey City, N. J., has been incorporated to manufacture and deal in dyestuffs, intermediates, chemicals.

ITALIAN GOVERNMENT ASSUMES CONTROL OF DYE INDUSTRY

American Colors Liked—List of Dyes Used in Italy—One-third of Demand Met Locally—Prices Are Lower

By RAFFAELE SANSONE

Genoa, January 31.

Through a Royal decree an agreement has been arranged between the Italian Minister of Industry and Commerce and the Association of Producers and Consumers of Artificial Coloring Matters (Consorzio fra Produttori e Consumatori di Materie Coloranti), for the sale of all dyestuffs coming from Germany. Through this agreement the said Association was placed in the right of receiving a first lot of 700 tons of the coloring matters and intermediate products delivered by Germany on account of War Reparation, at the condition of opening a bank credit of 9,000,000 lire and paying to the Italian Treasury, within five days from the delivery of the goods, 1,000,000 lire. The above lot is to be followed by others arranged through successive contracts.

The prices and conditions of sale are fixed by a technical committee, named by the Italian Ministry, and the first are contained in a special list, kept at the disposal of interested parties at the Milan Chamber of Commerce. The money obtained through the sale of the dyes and intermediates is to be paid to the Italian Treasury, after deducing a commission of 4 per cent, which is intended to cover all expenses and profits of the Association of Producers and Consumers of Artificial Coloring Matters. The Italian State, through the above Association, thus monopolizes the commerce and industry of dyestuffs in Italy, to the great damage of such exporting countries as the United States, England and France, the value of the products of which was being more and more appreciated.

However, the present gratuitous deliveries from Germany cannot last forever, and a time will come when the War Indemnity has been satisfied in full, a similar monopoly is only temporary, and it is at present well worth while to conduct a certain amount of preparatory work for guaranteeing a strong return of business in the near future. For such reasons coloring matter producers should prepare their way at present for the near future by keeping their names continually before the notice of the Italian purchasing public through a systematic sending of pattern cards, small samples and circulars such as used to be conducted by the German system before the war, and which assisted in placing this country first in the delivery of artificial coloring matters. Besides this, a certain amount of business is always still possible in those dyestuffs which cannot yet be supplied by Germany, or are supplied in too small quantities for satisfying all demands.

NATURE OF COLORING MATTERS USED IN ITALY

Owing to its great proximity to Germany and France, and to its numerous dye works and print works for the coloring of the different materials, Italy is accustomed to use every class of coal tar and natural coloring matters, and is usually well informed on all novelties, specialties, etc. The colors most used are the direct, or substantive; the basic, the sulphur, the ice, the vat, the alizarine and the acid colors. Among the most needed at present, however, are the direct, basic and acid colors, together with synthetic indigo, principally for wool, cotton, silk, paper and leather, hemp and linen being little dyed. This without calculating the requirements in logwood, quercitron bark, Persian berries, redwoods, cochineal, natural indigo and mineral colors that are still very great.

(*Continued on page* 12.)

AMERICAN DYESTUFF REPORTER
Published weekly by
HOWES PUBLISHING COMPANY
Woolworth Bldg., New York Tel. Barclay 7558

Pointed solely toward the welfare and growth of the American Dyestuff Industry. Unbiased contributions appreciated.

A. P. HOWES, President
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Domestic subscription, including technical supplement in 9"x12" size once each month, $5 per year. Foreign, $6. Advertising rates on request.

SANSONE AS ITALIAN CORRESPONDENT

Elsewhere in this issue of The REPORTER will be found a letter on dyestuff conditions in Italy written from Genoa under date of January 31 by Raffaele Sansone. The REPORTER is gratified to announce that arrangements have been made whereby we shall receive a similar letter each month.

Mr. Sansone is an authority on dyestuff matters, having spent his life in the profession and being the eldest son of Antonio Sansone, who is well known as the author of an internationally read work on Calico Printing, published some twenty-five years ago.

Mr. Sansone will also contribute from time to time articles on the use and application of dyestuffs which will appear in the Monthly Technical Supplements of The REPORTER.

ON HEADACHES

We are entering upon the twenty-second month of the Dye bill's sojourn in the Congress of this country, and by the time this issue is in the hands of its readers the present body will have passed into history to make way for the Sixty-seventh. At the present writing it looks as though nothing short of a miracle could get the measure through before Inauguration Day, and should the miracle be wanting—this not being the Age for such things—the Sixty-sixth Congress, more particularly the Upper House, can either point to or try to cover up as disgraceful a piece of negligence as ever marred the record of a supposedly representative government. That this Congress was a war Congress, taken up with problems connected with the war and its after-effects, will be the very worst of excuses in case the Senate fails to act. Rather will it be an added blot that it must be said: Here was a war Congress failing to heed one of the most striking lessons of the war, neglecting to act upon a true war measure.

No, the only possible excuse, which would be in no way acceptable, might be that the Senate in its supreme innocence, its surpassing puerility, had failed to realize the significance of the measure with which it aimlessly toyed. And with some 700-odd pages of testimony on the subject still lying ready to hand, such ignorance cannot seem otherwise than a little too dense to be natural.

Senator Thomas will not be back. Senator Moses will. President-elect Harding is said to favor dyestuffs legislation, although what he specifically has in mind there is no way of ascertaining right now. Representative Nicholas Longworth, who fathered the bill, has announced his intention of promptly re-introducing it, should it go over. Should he be obliged to do this, he will probably see to it that it is incorporated in the general tariff program being planned as a little curtain-raiser for the incoming administration. It is said that he has gained in influence and that he is to have charge of the chemical schedule of the new tariff, and these facts recently prompted the correspondent of a contemporary to write that the Dye bill, by virtue of them, will probably be in a better strategic position than it was last session.

Ah, well, if the Dye bill was in any kind of a strategic position during the session about to end, we here and now express an earnest hope that it will not be in a strategic position in the next. From where we sat during the carnage it appeared to be alternately in about the same kind of

strategic positions occupied by a rat being shaken in the jaws of a cat, and by Eugene V. Debs. It must have learned all the sensations of a cocktail in the days when such things existed. The last man in the box-office line of a Broadway attraction had rosy chances of receiving attention by comparison.

But why comparisons—now? Why anything at all—until next week, when we know what has happened? There is nothing to be said or done so far as the present Congress is concerned; and if it fails, our hopes must be all for the future.

Speculations of this sort lead to headaches—headaches of the variety, no doubt, from which the Senate Finance Committee, with elephantine humor, affected to suffer when the names of intermediates were being read from the Dye bill. But the committee should have read Carter on Licensing if it wanted to know the meaning of a *real* headache.

The annual meeting of the By-Products Coke Corporation, Syracuse, N. Y., was held February 23, and while it has been rumored that this company is to be taken into the merger of the five companies in the Allied Chemical & Dye Corporation, no statement on this matter was made by the company.

The Premier Dyestuff Company, Brooklyn, N. Y., has been incorporated with a capital of $30,000.

The American consul in Sofia, Bulgaria, reports that a concern of that city offers for sale 45,000 kilos of dried cocoons of excellent quality, white, Bagdad variety. This concern guarantees that 3.75 kilos of cocoons will produce 1 kilo of silk. Financial references are given. The name and address, financial references, and other particulars of this opportunity can be obtained at the Bureau of Foreign and Domestic Commerce by referring to file No. NE-34.

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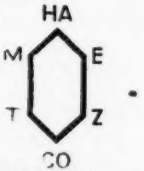

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THE ITALIAN DYE SITUATION

(*Continued from page 9.*)

Italian Manufacture of Dyes and Intermediates

The manufacture of dyes was tried in Italy on different occasions, and it has been possible to establish on a fair scale the manufacture of a certain number of colors and intermediates, such as direct colors for wool, sulphur colors, aniline oil and other intermediate, natural coloring matter extracts, chrome yellow, chrome green, some printers' lakes, etc., etc. The total production of the Italian works, however, is only sufficient to satisfy one-third of the total needs of the country when its industries are working in full, and which consume, in accordance with the official statistics, an average of 612 tons of aniline oil, 5,655 tons of dry coal tar colors, 782 tons of coal tar pastes and 611 tons of synthetic indigo per year. In reality, through the German supply of intermediates arranged through the Versailles Treaty, the above one-third can, however, be surpassed at present by the Italian aniline color and aniline oil industry, owing to the greater restrictions imposed in the consumption of dyed textiles in comparison with the times preceding the war, and owing to the recognizable extension in the consumption of natural colors, and especially of logwood, that can perhaps even maintain itself for some time to come.

The Italian coloring matter industry, however, has unfortunately one weak point, and this is that it cannot so far produce other most needed colors such as acid colors, basic colors and vat colors. For the manufacture of the same the raw materials are already to be found on the spot in good quantities (naphthalene, benzene, coal tar, etc.). What is necessary, however, besides money and chemists, is the required knowledge for the manufacture of the organic bases and acids from which the majority of coal tar colors are produced, and that is exceedingly difficult to obtain owing to the extremely wide range of the same, the secrecy with which their manufacture has been conducted, and the impossibility of finding a chemist who knows more than one branch of the manufacture of the same. Many chemists do well in color works where they have a given acid or a given base at their disposal, and which is purchased out of the works, or produced in another compartment of the same where they cannot enter, but they are not always able, however clever they may be, to manufacture all the products they use for producing their colors. The writer has often heard of examples of this, especially when German chemists were engaged by foreign color works, and were unable to produce the same dyes they had been manufacturing for decades in their own country owing to the lack of certain substances and products with the use of which they were acquainted and of the manufacture of which they could know nothing.

This does not mean, however, that artificial dyes cannot be produced to advantage even in Italy on a much larger scale than at present, and many Italian chemists are working with this end in view. There are examples of works all over the industrial world carrying out the manufacture of some colors that have never seen Germany. Many of these works cannot, however, produce certain classes of colors, especially if these require substances that are not obtainable on the market, or the manufacture of which has been only known so far to a few who are probably dead by this time.

Coloring Matter Quotations

The prices of coloring matters, through the monopoly mentioned above, have been gradually lowered, reaching figures that would have been impossible if the purchasing and selling methods adopted during the war had been continued, when the American, English and French products were handled like ordinary chemicals, and before reaching the consumer passed through very many hands, being often doubled

trebled and quadrupled in price when they were not submitted to unfair diluting operations. Some of the current quotations per kilo on the Italian market were as follows at the end of January: Direct Black, 60 lire per kilo; Direct Sky Blue, 180 lire; Direct Marine Blue, 60 lire; Benzo Purpurine 4B, 120 lire; Chrysophenine G, 180 lire; Nigrosine in crystals, 35 lire. The mineral and natural colors also received a marked reduction, some quotations being as follows: Italian Minium, 3.60 lire per kilo; English Minium, 4 lire; Lithophone, 3.50 lire; Litharge, 4.75 lire; Zinc White, 5 lire; White Lead, 5.50 lire; Ultramarine Blue, 8.50 lire.

TO SHOW ROLE OF AMERICAN DYES IN MODERN STAGECRAFT

Exhibits of more than passing interest to many elements of the dye and textile industries will be shown at the annual ball and entertainment to be held Wednesday, March 9, at the Waldorf-Astoria, New York, under the auspices of the United Scenic Artists Local No. 829, whose headquarters are at 161 West Forty-sixth Street. The trade needs little reminder of the increasing use, during the past two or three years, of dyed fabrics for backdrops and other parts of stage scenery in place of the painted canvas which once universally obtained. Many producers of note are coming to realize their advantages, not alone because of their greater beauty and superiority in securing certain effects, but because of the economy with which they can be transported, since they can be rolled up compactly and do not require specially constructed trucks as do the unwieldy canvasses mounted on frames.

According to Walter S. Darrell, business representative of the scenic artists, the exhibits at the ball will bring forward examples of the "dye-drops," as they are called, used in some of the big legitimate productions, showing what may be accomplished by the use of American dyes. Batiks made by leading studios will also be shown.

"DYEING WOOL AND COTTON GOODS"

In the February 14 issue of The Reporter appeared an article under the above title by Joseph Loebl, and through an error it was labeled "To be concluded." To those who read the article we would say, with Ethel Barrymore: "That's all there is; there isn't any more," and that the line which should have terminated this article was one crediting it to the *National Cleaner & Dyer*.—Ed.

LUSTER ON COTTON PIECE GOODS

Methods of producing a lustrous appearance on cotton goods have been in use for a considerable time. They are of a chemical or purely mechanical order, and in instances the methods relies on both. The chemical methods of lustering cotton goods may be divided into two main categories, the one covering those which certain conditions modify the cellulose of the fiber, and the other those by which the fiber is directly coated more or less with a film of a substance with a high refraction

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index by the treatment of the cloth itself.

Mercerization represents the type of processes causing a modification of the cellulose and though it is still a very popular method, the degree of luster it imparts is regarded as not quite satisfactory for some classes of goods. Many methods have been invented for transforming the superficial cellulose of the fabric into nitro cellulose or acetyl-cellulose. In the American patent 954,310, the transformation into acetyl-cellulose is obtained by the aid of a mixture of anhydrous acetic acid and sulphuric acid. This treatment is claimed to make the fabric waterproof as well as lustrous.

Another process consists in making a solution of silk waste in alkali or ammonium cuprate, and applying this to the cotton and then fixing the silk by a mineral acid or a bicarbonate. An acid solution of gelatine and formaldehyde has also been applied to the cotton by means of cylinders, and the gelatine subsequently coagulated by ammonia vapor. It has also been proposed to sprinkle the cotton fabric with a solution of nitro-cellulosein, a mixture of ether and alcohol, so as to form a fine covering of collodion. The film so produced on the surface of the cloth is opalescent because of the presence of water, but it is plainly visible. With the idea of avoiding the presence of the water, it has been suggested not to dissolve the nitro-cellulose in alcohol and ether, but in the acetate or the formate of amyl, which gives solutions containing 1 to 2 per cent of nitro-cellulose and may be colored with soluble dyestuffs.

Of the methods of a mechanical order, the oldest are pressing and calendering. The first application of engraved cylinders was on taffetas, the resulting finish being for a long time known as the Schreiner finish. Various and numerous modifications of this method have been made. Depierre employed in Alsace a method of calendering the pieces in the moist condition with calenders so heated as to convert the moisture into stream, and in that way produced a degree of luster capable of improvement by further mechanical treatment. A means proposed for making the luster obtained in cotton fabrics resistant to water consists in passing the fabric under tension between hot cylinders. It has been asserted that to fix the luster requires a rapid passage of the fabric at a temperature as high as 400 deg. Cent.—*Canadian Textile Journal.*

DYESTUFF EXPERT

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AMERICANS HAVE CHANCE TO COMPETE WITH JAPANESE IN MANCHURIA

Among the various kinds of cotton piece goods imported into Manchuria from abroad, a cloth known to the trade as "Japanese cotton cloth" is by far in the greatest demand. This kind of cloth is used exclusively by the agricultural and laboring classes, owing to its extreme cheapness and durability. About 75 per cent of the entire population of Manchuria—which is estimated at 18,000,000—is directly or indirectly engaged in agricultural work, and this fact shows clearly the tremendous demand existing for such cloth.

The customs returns show that the importation of Japanese cotton cloths into China in 1913 was 13,312,650 yards valued at $669,644, and in 1919 was 98,537,082 yards valued at $12,313,910. Of these quantities the amount sold in Manchuria in 1913 was 10,865,847 yards valued at $567,438, and 97,562,899 yards valued at $12,211,592 in 1919.

Jackets and trousers are made from the natural-colored cloth. Wadded winter garments are made of blue cloth. The uppers of the cheap Chinese shoes so popular among the laboring classes are made of this cloth after being dyed black. Dyed red, the cloth is used for wedding decorations and for the making of children's clothing, while a light gray shade is used for mourning garments. Apart from using the cloth for shoes, the laboring and agricultural classes use very little black cloth for any purpose, the blue shades being by far the most popular. In the natural color it is used in great quantities for a variety of purposes, such as lining for garments, bed quilts, shoes, and hats. The cloth is also used for mourning turbans, sashes, and gowns, worn during the period of mourning immediately following the death of a relative.

Every year a number of new chops appear on the markets. The most popular ones, both new and old, are:

	Per Bolt
Crown on Elephant	$2.90
Lucky Time	2.50
Te Shou Tu (a historical picture)	2.50
Golden Character	2.90
Heaven No. 1	2.90
Heaven No. 2	2.50
Three Boys	2.50
Happiness	2.40
Benefit	2.55

Among these chops, the "Crown on Elephant," "Lucky Time," "Te Shou Tu," and "Golden Character" are the best sellers. All Japanese cotton cloth comes in uniform dimensions of 18 inches by 22 yards. It is difficult to give the mills of origin, as the manufacturers' names do not appear.

This cloth is all imported in the natural color and dyed locally. In terms of small coin (at present exchange $1 small coin equals about 45 cents United States currency) the cast for dyeing is:

	Per Bolt
Medium blue	$1.20
Light blue	1.10
Black	1.00
Red	6.00
Gray	0.40

Japanese cotton cloth is packed in bales covered with straw matting and strapped with six iron bands. Each bale contains sixty bolts.

The cloth in natural color is in demand throughout the entire year and is dyed as the demand requires. As Manchuria has an exceedingly long winter, the demand for cotton piece goods is larger during that period than any other season.

The Japanese manufacturers place their goods with local Japanese importers who have extensive connections with interior points throughout Manchuria, the former granting the latter three months' credit, while the importers allow the Chinese dealers one month's credit, with the privilege of one month's extension and 3 per cent discount for cash. The Japanese manufacturers make it a practice to allow an importer who can guarantee the sale of a certain amount of cloth annually an individual chop, which can be used by no other importer. This method prevents a rival importer from encroaching on the trade of an importer who has the right to a particular chop, once the trade is familiar with it.

Should American manufacturers be able to produce a cotton cloth at prices competing with the Japanese, they

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could most probably obtain a share in this lucrative trade. To participate in the trade, nevertheless, it is essential to keep a local agent in Manchuria, who should at all times be kept well supplied with stocks in order that immediate deliveries could be made. Japanese sales methods as outlined in the foregoing and credit system extended would have to be followed.

NOTES ON DYEING UNION MATERIAL

(In a previous article the writer gave a general outline of the principles of garment dyeing. In this article he goes into the matter in more detail and describes the different methods to be followed to apply the different dyestuffs on different materials.)

The materials of which the garments of to-day are made are, as a rule inferior both in quality and color to the materials used a few years ago. In many cases these garments are more faded than were the garments that were received a few years ago. By this I do not mean to insinuate that the dyestuffs of to-day are inferior to the pre-war dyes. The dyes being made in this country at this time are the equal in every respect to the German colors. It is true, that some colors have not, as yet, been made here but the dyes that are used most extensively in the garment dyeing industry are available, and are as good in every way as dyes, formerly obtained from abroad. The problem consists in applying them in the proper manner to secure satisfactory results.

The materials that find their way most frequently to the cleaning and dyeing plant to be dyed are union goods—fabrics made up from more than one fiber. The combination might be composed of cotton and wool, cotton and silk or wool and silk. The last combination is the most difficult to dye satisfactorily. It is a very simple matter to color wool or silk separately with a direct or an acid dye, but to color the two fibers to the same shade at the same time and produce an even and a solid color is a somewhat difficult problem and requires considerable skill.

Wool and Silk

Of the various colors I have used I find that the direct colors are the most suitable for this kind of work. They color the wool and the silk much evener, in most cases, than the acid dyes do. It is best to dye combinations of wool and silk in a neutral bath with the addition of Glauber's salt.. Most of the direct dyes have an affinity for the silk at a low temperature. The dyeing process should be started at a fairly low temperature and the temperature of the bath raised slowly to the boiling point. The material is then boiled until the wool is the same shade as the silk. This usually requires from fifteen to forty-five minutes according to the depths of shade required and the affinity of the

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dyestuff being used for the different fibers. The goods are allowed to remain in the cooling bath for from fifteen to thirty minutes and are then removed and rinsed.

When the direct colors do not possess the required brightness neutral dyeing wool colors may be used in conjunction with the direct colors to produce the shade required. The reason I have commented on this particular material (silk and wool mixed goods) is that many of the textile mills are making it and it will not be long until considerable quantities of it will be finding its way to the plant to be dyed.

Wool and Artificial Silk

At first glance a garment will sometimes appear to be a mixture of wool and silk, when in reality it is composed of wool and artificial silk. If direct colors have been used to produce the shade desired it does not make any difference whether the fabric is made of wool and real silk or wool and artificial silk, as the direct colors will, in most cases, color both of these materials equally well. However, if acid colors are used it will be found that the wool is colored while the artificial silk remains uncolored.

There are certain colors that will dye wool and leave both silk and artificial silk unstained, but as a general rule acid colors dye real silk and leave the artificial silk unstained or slightly tinted. Silvertones, tinseltones, and various other dress goods on the market to-day, are composed of wool and artificial silk and when dyed with acid colors produce two-tone effects. When these goods are received to be dyed there are two methods of dyeing that can be followed: (1) Dyeing with an acid dye to produce a different color and at the same time not destroy the two-tone effect, or (2) dyeing with a direct or a union color and thus color the fabric to a uniform shade. If the ground color of the material is a fairly dark shade and the artificial is colorless or only slightly tinted more or less of a contrast is bound to appear even when dyeing with direct or union dyes but, as a rule, it is only a slight shade of difference and usually satisfies a customer, as the contrast is always a pleasing one.

The Matter of Temperatures

When acid colors are used for dyeing wool and silk garments to produce solid shades, great care must be taken to choose the proper dyes to do this work and then if the proper dyes are used it is a matter of watching closely the temperature of the dyebath. The silk, as a rule, absorbs color at a lower temperature than the wool and, therefore, is the fiber that is dyed first. As the temperature increases more and more of the dye goes on the wool and more or less of the dye will boil off the silk. It is always advisable to sample at the boil, as in some cases both the wool and the silk are of the same shade, or very nearly the same shade, when the boiling point is reached. When this occurs the steam can be shut off and the goods allowed to remain in the cooling bath for from thirty to forty-five minutes.

(To be continued.)

The La-Lo Chemical Company, Providence, R. I., has been incorporated with a capital of $200,000, to manufacture dyestuffs and chemicals. The incorporators are E. J. Tetlow, C. E. Waterman and R. M. Greenlaw, Providence.

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—o—

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—o—

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—o—

Editorial Excerpt — "Interressengemeinschaft"!! Whaddya mean, bringing the name for a new brand of sausage up in a dyestuff editorial?

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"Reporter" Advertisement—"For level dyeing acid colors consult The Chem. Co. of America." Take a half pint of the same company's brand of Monopole, and they'll all look level whether they are or not.

—o—

Brains, we'll say, are a necessary ingredient in the blending of compound shades.

G. E. T.

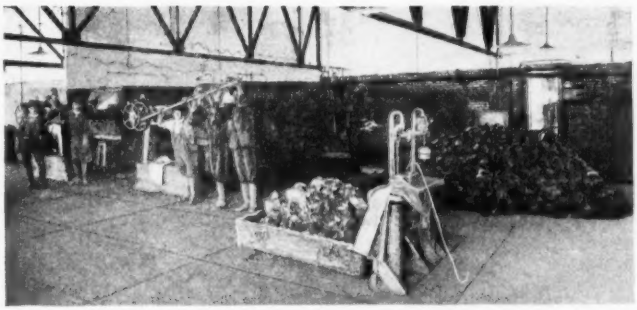
NOTES OF THE TRADE

The D-K Chemical Company, Nutley, N. J., has been incorporated with a capital of $100,000, to manufacture chemicals and dyestuffs. The incorporators are Gustave Katzsch, Howard M. Gensel, Nutley; and Ernest Keller, Montclair, N. J.

At a recent meeting of the Master Dyers' Association of Philadelphia the feature was a moving picture exhibition of the processes in the manufacture and standardization of dyestuffs. These were the results of views taken at the dyestuff plant of E. I. du Pont de Nemours & Co., at Deepwater, N. J. This now comprises 159 major buildings and 300 less important structures, covering an area of two square miles.

The three manufacturers' representatives on the British dyestuffs advisory committee will be W. J. U. Woolcock, M. P., general manager of the Associations of British Chemical Manufacturers; E. V. Evans, South Metropolitan Gas Company, and J. Whittemore, British Dyestuffs Corporation.

C. R. DeLong, for some time a member of the chemical staff of the United States Tariff Commission, has been placed in charge of the chemical section of the Commission's force. Dr. Grinnell Jones, who held that position for some time, has been placed on a purely consulting basis. The latter has done little more than consulting work for the Commission for quite a while, being a member of the chemical faculty of Harvard.



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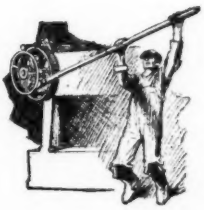

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